March 12, 2012

ALSO DELIVERED VIA EMAIL: Sherry.Ruther@dsd.pima.gov

Ms. Sherry Ruther
Environmental Planning Manager
PIMA COUNTY ADMINISTRATION
OFFICE OF SUSTAINABILITY & CONSERVATION
201 N. Stone Ave. - 6th Floor
Tucson, Arizona 85711

RE: NRG SOLAR AVRA VALLEY LLC - PRE-CONSTRUCTION SURVEY FOR WESTERN BURROWING OWL WESTLAND PROJECT NO. 1723.01

Dear Ms. Ruther:

WestLand Resources Inc. (WestLand), on behalf of NRG Solar Avra Valley LLC (NRG) recently completed pre-construction surveys for the western burrowing owl (*Athene cunicularia hypugaea; WBO*) and burrows for the solar development project in Avra Valley, Arizona. Multiple preliminary WBO surveys were conducted in 2011 for both on- and offsite project disturbance areas. A WBO compilation report dated January 3, 2012 (previously provided under separate cover) summarizes previous WBO surveys and resulting actions completed for the Project including coordination with Liberty Wildlife and the US Fish and Wildlife Service (USFWS) Migratory Bird Office to obtain clearance for the closure of burrows and the passive relocation of one owl in the project area.

Pre-construction clearance surveys were conducted March 1-2, 2012 in anticipation of ground disturbance activities within the next 30 days. The purpose of this submittal is to document the completion of pre-construction surveys and specifically:

- 1. Document compliance to Special Condition 12 of Pima County's Type II Conditional Use Permit (P21-11-011); and
- 2. Report survey activities to the Raptor Management Coordinator of the Arizona Game and Fish Department (AGFD) in accordance with the January 2009 *Burrowing Owl Project Clearance Guidance for Landowners* produced by the by the Arizona Burrowing Owl Working Group (ABOWG).

Ms. Sherry Ruther March 12, 2012 Page 2

Should you have any questions or require any additional information please feel free to contact me at (520) 206-9585.

Respectfully

WestLand Resources, Inc.

Diana Shiel Project Manager

DLS:erm

Enclosure: Pre-construction Survey for Western Burrowing Owl at the Avra Valley Solar Project in

Pima County, AZ

cc: James Kelly, NRG (hard copy mailed, electronic file provided)

Tom Drzazgowski, Pima County Development Services (hard copy mailed, electronic file provided)

Terri Tillman, Pima County Development Services (electronic file provided)

Johanna Falzarano, AECOM (electronic file provided)

Asia Philbin, Tucson Water (electronic file provided)

Carolyn Campbell, Coalition for Sonoran Desert Protection (electronic file provided)

James Driscoll, AGFD Raptor Management Coordinator (electronic file provided)

Mike Ingraldi, AGFD Supervisor (electronic file provided)

# PRE-CONSTRUCTION SURVEY FOR WESTERN BURROWING OWL AT THE AVRA VALLEY SOLAR PROJECT IN PIMA COUNTY, ARIZONA

**Prepared for:** NRG Solar Avra Valley LLC

**Prepared by:** WestLand Resources, Inc.

**Date:** March 12, 2012

**Project No.:** 1723.01 A 0349

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#### LIST OF ATTACHMENTS

(follow text)

Attachment A. AGFD Survey Report Forms

#### 1. INTRODUCTION AND BACKGROUND

WestLand Resources, Inc., (WestLand) was contracted by AECOM on behalf of NRG Solar Avra Valley LLC (NRG) to conduct surveys for western burrowing owl (*Athene cunicularia hypugaea*; WBO) and burrows in support of environmental clearance for an approximately 25-MWac single-axis tracker photovoltaic solar power generation facility with onsite and offsite associated infrastructure (the "Project") on approximately 340 acres including the 320-acre Lupori Farm property in Avra Valley, Pima County, Arizona. Development involves installation of photovoltaic solar arrays, an operation and maintenance building, road improvements, temporary construction staging features, onsite distribution and collection lines, and a power substation. The Project will also incorporate conservation measures through a combination of onsite and offsite mitigation lands. Approximately 69 acres of conservation lands are being provided onsite and approximately 431 acres

of conservation lands are being provided offsite as identified though a collaborative effort with Pima County, Tucson Water, and the Coalition for Sonoran Desert Protection<sup>1</sup>.

The area surveyed for this Project, collectively referred to as the "Project Area" (see *Figure 1*) includes:

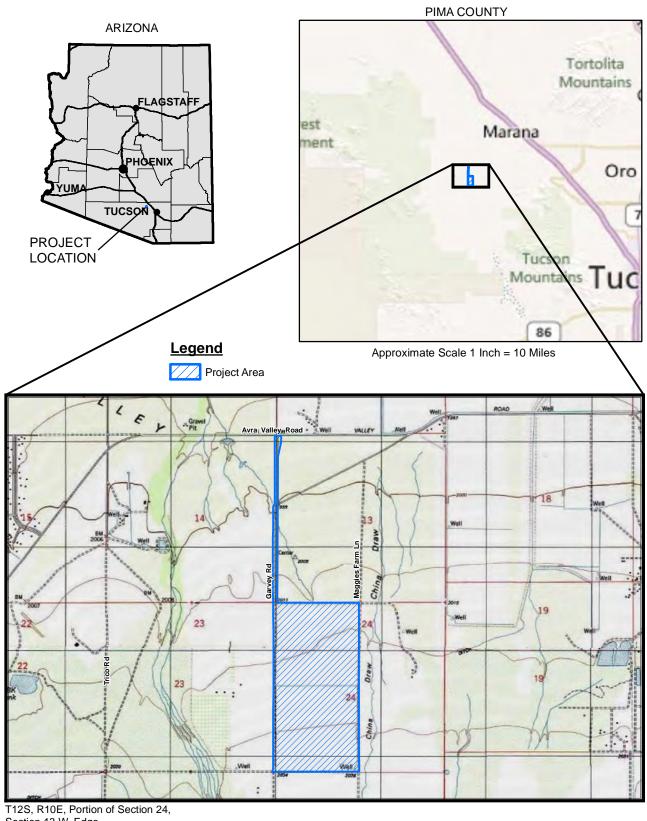
- The approximately 320-acre Lupori Farm located at 9602 N. Garvey Road, situated in the west half of Section 24, Township 12 South, Range 10 East;
- Approximately 15 acres for a proposed transmission line right-of-way (ROW) from the southwest corner of the Lupori Farm north to Avra Valley Road, a length of two miles along the West edge of Section 24 and Section 13, and East edge of Sections 14 and 23, Township 12 South, Range 10 East; and
- A tap line and expanded easement area comprised of a 200 x 200 ft footprint at the southeast corner of Avra Valley Road and Garvey Road and a tapering area from the south end of the tap line area to the Garvey Road easement, and additional ROW along Garvey Road (to include a width of 75 feet east of the section line) comprised of approximately 5 acres between Sections 13 and 14, Township 12 South, Range 10 East, Gila and Salt River Baseline and Meridian.

Multiple preliminary WBO surveys were conducted in 2011 for both on- and offsite Project disturbance areas. A WBO compilation report dated January 3, 2012 (provided under separate cover) summarizes these WBO surveys and resulting actions completed for the Project. The purpose of the preliminary surveys was to determine the status of occupancy by WBO in advance of proposed construction, to allow time to accommodate any owls, if present. NRG elected to collapse inactive burrows in the Project Area as a preventative conservation measure. During a site visit on October 12, 2011, an owl was sighted flying away from a burrow at the Project Area. WestLand worked with Liberty Wildlife and the US Fish and Wildlife Service (USFWS) Migratory Bird Office to obtain clearance for the closure of burrows in the Project Area and allow passive relocation of the owl. The compilation report summarizes activities conducted prior to preconstruction surveys (permitted closure of suitable burrows and passive relocation of one owl) in additional detail.

The purpose of this pre-construction survey report is to document the completion of pre-construction survey completed within 30 days of anticipated ground disturbance activities for construction of the Project, and specifically:

1. Document compliance with Special Condition 12 of Pima County's Type II Conditional Use Permit (P21-11-011) that requires WBO surveys be conducted and that negative survey results for WBO or appropriate conservation of owls found onsite be verified; and

<sup>&</sup>lt;sup>1</sup>WestLand 2011. *Onsite Revegetation and Restoration Plan – Avra Valley Solar Project*. Report dated December 7, 2011- approved by Pima County December 9, 2011.

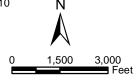


Section 13 W. Edge,

and Sections 14 and 23 E. Edge

Pima County, Arizona,

West of Marana & West of Avra USGS 7.5' Quadrangles Photo Source: National Agriculture Imagery Program, 2010



AVRA VALLEY SOLAR PROJECT Western Burrowing Owl **Pre-Construction Survey** 

> Vicinity Map Figure 1



2. Report survey activities to the Raptor Management Coordinator of the Arizona Game and Fish Department (AGFD) in accordance with the January 2009 *Burrowing Owl Project Clearance Guidance for Landowners* produced by the by the Arizona Burrowing Owl Working Group (ABOWG) (*Attachment A*).

### 2. METHODS

WestLand followed the recommended WBO survey protocol found in the January 2009 *Burrowing Owl Project Clearance Guidance for Landowners* produced by the ABOWG. Survey providing coverage of the entire Project Area was conducted on March 1 and 2, 2012 in anticipation of construction activities to commence late-March 2012. The first day, a two-person crew of biologists<sup>2</sup> headed by an individual with WBO survey protocol certification surveyed the Project Area. The second day a crew of four<sup>3</sup> completed the survey, including the same certified individual and an individual who attended WBO training conducted along the Santa Cruz River by the AGFD in 2010. All surveyors had either attended the ABOWG training or have extensive demonstrable experience conducting similar biological fieldwork involving transect surveys.

The survey was conducted by walking parallel transects at approximately 10-meter (33-ft) intervals to cover the entire Project Area, adjusting the transect width to ensure that the entire Project Area surface was inspected. The surveyors searched for WBO, potential WBO burrows, and WBO sign (pellets, prey remains, feathers, feces, and whitewash [liquid bird excrement]). The surveyors used binoculars to scan the area periodically. All burrows 8 centimeters (3 inches) or greater in diameter were assessed for potential use by owls. Burrows were categorized according to ABOWG guidelines: "active" if there was sign of recent WBO use, "potentially active" if there was evidence of use, but not recent, and "inactive" if there was no evidence of use. WBO sign would be cleared from around any potentially active burrows if found, and revisited 2-8 days later to inspect for recent WBO use.

#### 3. SITE DESCRIPTION

Elevations within the Project Area range from approximately 2,010 to 2,035 feet above mean sea level. The Project Area is characterized primarily by reestablishing desert land/former agricultural fields. Rosen (2005)<sup>4</sup> reported that former agricultural lands owned by the City in Avra Valley are in succession toward sustainable natural habitat conditions that support diverse plant communities. Cattle were grazed at the Project Area following agricultural use, likely assisting with seed dispersal (C. Lopez, Tucson Water 2011, pers. comm. June 27). The Project Area is located near the boundary delineating Arizona Upland and Lower Colorado River Valley subdivisions of the Sonoran Desertscrub biotic community as mapped by Brown and Lowe

<sup>&</sup>lt;sup>2</sup> Ms. Lindsay Carney and Mr. Jack Zittere

<sup>&</sup>lt;sup>3</sup> Ms. Lindsay Carney, Mr. Jack Zittere, Mr. David Ward, and Mr. Corey Archer

<sup>&</sup>lt;sup>4</sup> Rosen, Philip C. 2005. *Ecological Opportunities in the Lower Santa Cruz Valley of Avra Valley and the Santa Cruz Flats*. University of Arizona School of Natural Resources. Tucson, AZ. Available online at: <a href="http://rfcd.pima.gov/reports/pdfs/lowersc\_rosen.pdf">http://rfcd.pima.gov/reports/pdfs/lowersc\_rosen.pdf</a>

(1980)<sup>5</sup>. Vegetation onsite exhibits characteristics that are consistent with the Lower Colorado Valley community (Brown 1982)<sup>6</sup>. The Project Area is vegetated predominantly by velvet mesquite (*Prosopis* velutina). Other vegetation observed at the site includes whitethorn acacia (Acacia constricta), burroweed (Isocoma tenuisecta), four-wing saltbush (Atriplex canescens), desert broom (Baccharis sarothroides), blue paloverde (Parkinsonia florida), creosotebush (Larrea tridentata), snakeweed (Gutierrezia sarothrae), wolfberry (Lycium sp.), chainfruit cholla (Opuntia fulgida), and fishhook barrel cactus (Ferocactus wislizenii). The composition of vegetation at the site is generally uniform, though more dense concentrations of mesquite trees and shrubs appear to be located at low gradients on the site and along reaches at the perimeter of the site where storm water is impounded. Several large caliper trees are located along the perimeter of the Project Area.

Existing improvements at the Project Area include informal interior dirt roads along the perimeter of the property, historical concrete lined irrigation canals, strand fencing, and remnants of a former residence located at the southeast corner of the Project Area, including a historic irrigation well, historic domestic well, utilities, a raised concrete pad and a concrete foundation.

Adjoining land includes open space/former grazing land to the north, low density residential and commercial use to the east, fallow agricultural fields and low density residential development to the west and reestablishing desert land that was once an agricultural field to the south.

Figure 2 provides an aerial overview of the Project Area and immediate vicinity.

WestLand Resources, Inc.

<sup>&</sup>lt;sup>5</sup> Brown, D. E. and C. Lowe. 1980. Biotic communities – Southwestern United States and Northwestern Mexico. Map. University of Utah Press. Salt Lake City, Utah.

<sup>&</sup>lt;sup>6</sup> Brown, D.E. (ed). 1982. Biotic Communities of the American Southwest: United States and Mexico. Desert Plants 4(1-4):1-342. University of Utah Press. Salt Lake City.

VIEW NORTH



T12S, R10E, Portion of Section 24, Section 13 W. Edge, and Sections 14 and 23 E. Edge Pima County, Arizona,

West of Marana & West of Avra USGS 7.5' Quadrangles
Photo Source: National Agriculture Imagery Program, 2010





VIEW SOUTH DESERT OWL WAY

# Legend

Project Area

Location of Inactive Burrow, Photo Point 1

AVRA VALLEY SOLAR PROJECT Western Burrowing Owl Pre-Construction Survey

> Recorded Feature and Photo Point Location Figure 2

#### 4. SURVEY RESULTS

Only one burrow of appropriate entrance dimensions for WBO use was identified in the Project Area, and no sign of WBO or WBO occupancy was found. Given that previously identified burrows were closed in December, this finding is not surprising. The recorded burrow was photographed (see *Photo 1* below), and GPS locations recorded on the AGFD WBO survey report form (*Attachment A*). *Figure 2* depicts the location of the photographed burrow on an aerial overview map depicting the Project Area.



Photo 1. Natural, inactive burrow measuring ≥ 8 cm within the Project Area.

WestLand coordinated with the local AGFD to revisit the burrow identified during the pre-construction survey and collapse the burrow if it was confirmed to be unoccupied to prevent an owl from using the burrow prior to construction. Mr. Dennis Abbate, a research biologist with the AGFD met Ms. Lindsay Carney from WestLand at the Project Area on March 9, 2012. Mr. Abbate checked the burrow for owl and any sign of owl. Once confirmed that there was no owl or sign of owl, Mr. Abbate carefully excavated the burrow, reaching in to feel for shelves and tunnels. Once cleared, the tunnel was completely dug out and collapsed. *Photos 2* and 3 show the suitable but unoccupied burrow being excavated.



Photo 2. Excavation of unoccupied burrow, showing side tunnels which were excavated.



Photo 3. Excavation of unoccupied burrow.

#### 5. SUMMARY AND RECOMMENDATIONS

No evidence of WBO was found at the Project Area during the March 1 and 2, 2012 surveys. These surveys were conducted in accordance with the January 2009 *Burrowing Owl Project Clearance Guidance for Landowners* produced by the ABOWG. A single burrow with an entrance of appropriate size for use by WBO was located during the 2012 survey, but no WBO sign or sign of any recent activity at the burrow was found.

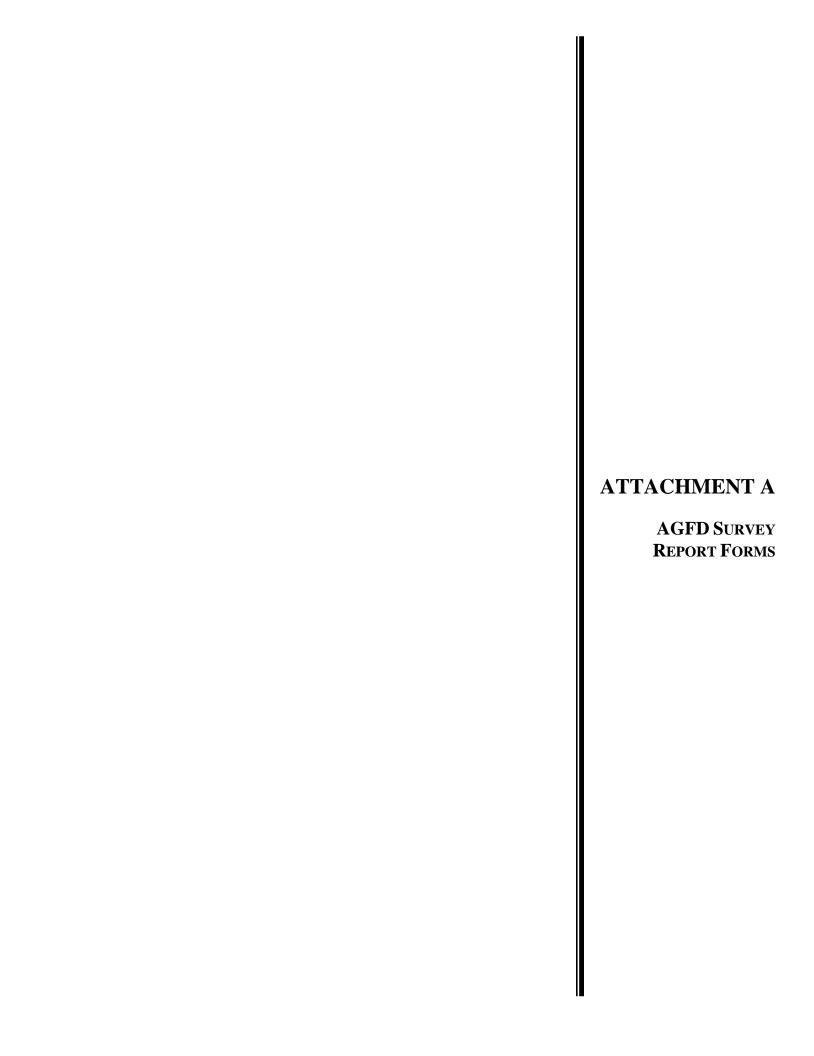
WestLand coordinated with AGFD to implement conservation measures to prevent an owl from occupying the single burrow identified with suitable dimensions for WBO located during the pre-construction surveys. On March 9, 2012 Mr. Dennis Abbate, a research biologist with the AGFD met Ms. Lindsay Carney from WestLand at the Project Area and re-checked the burrow for owl and any sign of owl. Once confirmed that there was no owl or sign of owl, Mr. Abbate carefully excavated and collapsed the burrow.

NRG implemented conservation measures for WBO in accordance with published protocol and federal law. This report, in conjunction with the WBO Project compilation report dated January 2, 2012, are intended to satisfy reporting obligations to Pima County and the AGFD.

The ABOWG clearance protocol recommends that project initiation be avoided in March due to the possibility of new owls arriving during construction. Given the project schedule, it is noted if owls or occupied burrows are detected during project implementation, the burrows must be avoided until status of the burrow can be determined and any owls removed by properly permitted individuals/groups, or until conservation measures are implemented.

<sup>&</sup>lt;sup>7</sup> A 35-m (100-foot) radius buffer, excluding all heavy machinery and foot traffic, should be set up around active burrow entrances during construction until the appropriate conservation measures are determined.

<sup>&</sup>lt;sup>8</sup> Potential conservation measures include: 1) collapsing all burrows of suitable dimensions by a permitted individual, 2) identifying open space areas to be protected as a buffer around occupied and suitable owl burrows, 3) passive exclusion of owls, or 4) translocation of owls by a permitted individual.



# APPENDIX B. BURROWING OWL SURVEY REPORT FORM

Surveyor(s): D. ward, C. Archer, L. Carney	Date of Survey: 3/2/2012
Project Location Information	,
Project Location Information	Weather Conditions During Survey
Project Name: Lupori / Arra Valley Solar	Precipitation: Y / (circle one)
Project Name: Lupori / Arra Valley Solar City: Unincorporated Arra Valley	Wind Speed (mph): 0 -3
County: Pima	Temperature: 4/6E/°C (circle)
Legal Description (address, ¼ Section,	% Cloud Cover: 0%
Legal Description (address, 1/4 Section, Township, Range): T125, R10E, Portm of Section U, Section 13 West edge, Sections 14 † 23 East	0 10
Section 13 West edge, Sections 19 \$ 23 East	tedge
Survey Data	8
Area Surveyed: 340 acres / ha / km² / m² (circle one)	
# Adult burrowing owls detected: *	Total # Active burrows:
# Juvenile burrowing owls detected:	Total # Potentially Active burrows:
Total # burrowing owls detected:	

# Habitat Description within Project Area (check if applicable)

Open, treeless area
Creosote flats
Wash corridor
Suitable burrows

Sonoran desert scrub
Agriculture
Urban development

Fossorial mammals present – list species:

Attach map of surveyed area with locations of survey transects. Identify locations of owls and suitable burrows. List owl detections and active or potentially active burrow locations in the following table (please include coordinates and datum) Attach additional pages if necessary:

Proto 3199	
GPS CAM 4	

Observation Type (Owl or Burrow)	Coordinates		Observation Type (Owl or Burrow)	Coordinates
	473464E, 3581462N ance) (Burrow depth)	7	(Owi of Bullow)	
ce was enn	approx 2.5	)		

Return completed forms (regardless of w	hether burrowing owls are detected) along with the
surveyor's certification to:	1 473006E', 3581830N
Raptor Management Coordinator Arizona Game and Fish Department	2 473006E; 3581690 N
Nongame Branch	3 473 006E', 3581530 N
5000 West Carefree Highway Phoenix, AZ 85086	4 473 006E, 3581380N
(623) 236-7500	4. 473 0000, 338, 330
raptors@azgfd.gov	5 473004 E', 3581 150 N
	6 473 OUZE, 3580960N
	7 473 299 E, 3580 865 N
	1 473 279 E, 33 80 800

## APPENDIX B. BURROWING OWL SURVEY REPORT FORM

Surveyor(s): L. Carney, J. Zi Here, C. Archer	Date of Survey: $3/2/2012$
1). 1/10.	'
Project Location Information	Weather Conditions During Survey
Project Name: Lupor! / Avra Vally Do larlowy	Precipitation: Y / N (circle one)
Project Location Information Project Name: Lupori / Avra Valley So las County: Other Corporated Avra Valley County: Other Corporated Avra Valley	Wind Speed (mph): 0-3
County. Privila	Temperature: 91 (F)/ (Circle)
Legal Description (address, ¼ Section,	% Cloud Cover: 0 %
Township, Range): T125, RIDE, PORTIN of Section	24
Legal Description (address, 1/4 Section Portin of Section Township, Range): T125, RIDE Portin of Section Section 13 West edge, Sections 14923 East	teda
Survey Data	-3-
Area Surveyed: 340 acres / ha / km² / m² (circle one)	
# Adult burrowing owls detected: •	Total # Active burrows: +>
# Juvenile burrowing owls detected: **	Total # Potentially Active burrows:
Total # burrowing owls detected:-	,
Habitat Description within Project Area (check if applicable	<u>e)</u>
Open, treeless area	Sonoran desert scrub
Creosote flats	Agriculture
Wash corridor	Urban development
Suitable burrows	• ***
Fossorial mammals present – list species:	

Attach map of surveyed area with locations of survey transects. Identify locations of owls and suitable burrows. List owl detections and active or potentially active burrow locations in the following table (please include coordinates and datum) Attach additional pages if necessary:

100	10E -		
Observation Type (Owl or Burrow)	Coordinates	Observation Type (Owl or Burrow)	Coordinates

Return completed forms (regain	dless of whether burrowing owls are de	tected) along with the
surveyor's certification to:	474012E; 3584052N	Transect 1
Raptor Management Coordinator		7
Arizona Game and Fish Department	472991E; 3582463N	_
Nongame Branch		3
5000 West Carefree Highway	472983E, 3580 854N	
Phoenix, AZ 85086		
(623) 236-7500		

raptors@azgfd.gov

#### APPENDIX B. BURROWING OWL SURVEY REPORT FORM

APPENDIX B. BURROWING OWL SURVEY REPORT FORM	
Surveyor(s): J. Zittere, L. Carney	Date of Survey: 3/1/2012
Project Location Information Project Name: Lupuri / Arra Valley Solar City: Unincorporated Arra Valley County: Plma Legal Description (address, 1/4 Section, Township, Range): T 125 RIDE Porting of Section Section 13 West edge, Sections 14 & 23 & Survey Data Area Surveyed: 340 acres / ha / km² / m² (circle one) # Adult burrowing owls detected: 0 # Juvenile burrowing owls detected: 0 Total # burrowing owls detected: 5	Weather Conditions During Survey Precipitation: Y (Decircle one) Wind Speed (mph): 0-3 Temperature: 91 °F/ °C (circle) % Cloud Cover: 0%  Last edge  Total # Active burrows: 6 Total # Potentially Active burrows: 6
Habitat Description within Project Area (check if applicabed Open, treeless area Creosote flats Wash corridor Suitable burrows Fossorial mammals present – list species:  Attach map of surveyed area with locations of survey trasuitable burrows. List owl detections and active or pote following table (please include coordinates and datum) Att	Sonoran desert scrub Agriculture Urban development  ansects. Identify locations of owls and intially active burrow locations in the
Observation Type Coordinates Observation	tion Type Coordinates Burrow)
Raptor Management Coordinator Arizona Game and Fish Department  Nongame Branch 5000 West Carefree Highway Phoenix, AZ 85086	ng owls are detected) along with the 73008 E; 3582 443 N 73008 E; 3582 340 N 73005 E; 3582 260 N 73005 E; 3582 170 N 73006 E; 3582 170 N